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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/936,932	01/16/2002	Peter Hagerlid	14256	2854
7590	06/30/2006		EXAMINER	
Dorsey & Whitney 250 Park Avenue New York, NY 10177			GORDON, BRIAN R	
			ART UNIT	PAPER NUMBER
			1743	

DATE MAILED: 06/30/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	09/936,932	HAGERLID ET AL.	
	<b>Examiner</b> Brian R. Gordon	<b>Art Unit</b> 1743	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

**A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.**

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) Responsive to communication(s) filed on 5-2-06.  
 2a) This action is FINAL.                    2b) This action is non-final.  
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) Claim(s) 1-4, 16, 18 and 20-31 is/are pending in the application.  
 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
 5) Claim(s) \_\_\_\_\_ is/are allowed.  
 6) Claim(s) 1-4 and 16, 18, 20-31 is/are rejected.  
 7) Claim(s) \_\_\_\_\_ is/are objected to.  
 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) The specification is objected to by the Examiner.  
 10) The drawing(s) filed on 19 September 2001 is/are: a) accepted or b) objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All    b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
|  | 6) <input type="checkbox"/> Other: _____                                    |

## DETAILED ACTION

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on May 2, 2006 has been entered.

### ***Response to Arguments***

2. Applicant's arguments, see amendment, filed May 2, 2006, with respect to the rejection(s) of claim(s) 1-4, 18 and 20-23 under 102 have been fully considered and are persuasive for the references do not disclose dispensing nanoliter volumes in the specified range. Therefore, the rejections have been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Rose et al. US 6,551,557.

Applicant has amended claim 1 to state an aperture of a size that prevents leakage of **fluid**. A fluid is defined as a liquid or gas. How is it that an open aperture can prevent a gas from passing therethrough? Furthermore this is new matter for there is no support for such provided in applicant's specification. It should further be noted that for an aperture to functioning as claimed is dependent upon a number of factors other than the size of the aperture. Viscosity of the fluid, material of construction, environment that the device is located, the orientation of the device, amount of liquid in

the device, etc. as such stating a device is sized as such is not sufficient enough to be considered alone as a structural limitation of the aperture.

The claim has been further amended to recite a separate outlet member attached and adjacent to the liquid reservoir. Applicant states support for such is provided at page 7, lines 6-17. It is not clear what applicant means by "separate" for the term is not located in the passage. As such it may be considered new matter. The passage states: "an outlet port attached to or integrally formed with said reservoir and in fluid communication therewith". The passage appears to be directed to the process of manufacture rather than a structural limitation. It appears as if the device is made by process in which the elements are integral (one piece) or made separately and by some means attached to one another. However, it should be noted that process limitations with an apparatus claims are not considered further limiting. Specifically the only requirement is that the outlet member be adjacent to the reservoir. A structurally equivalent device made by any means other than that specified by applicant would still meet the limitations of the claim.

The claim further states: "drops **can be** forced by a pulse of pressurized gas". This is not considered a structural limitation of the claim but yet an intended use of the device. A pressurized gas is not positively claimed as an element of the cassette hence the text is directed to how one intends to use the cassette in conjunction with the unclaimed pressurized gas. There is nothing preventing a structurally equivalent device from employing other means of ejection such as vacuum pressure, solenoids, piezoelectric, etc.

***Specification***

3. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: The specification does not support the aperture preventing leakage of fluid (see explanation above).

***Claim Rejections - 35 USC § 112***

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claims 1-3, 16, 18, 20-31 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The claims nor specification previously recited a separate outlet member/protruding nozzle. What is meant by "separate". Furthermore the claims nor specification did not recite an aperture of a size that prevents leakage of a fluid (as explained above).

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 1, 2, 16, and 31 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 2 is directed to a process limitation of how the devices are formed or manufactured (explained above).

It is unclear how the aperture can prevent a fluid (gas) from leaking therefrom. Furthermore there are a number of factors other than the size that would determine if the aperture would function as claimed.

Claim 16 is directed to the width of the aperture, it is unclear if applicant is attempting to state the shape of the aperture is something other than circular for width is not a dimension of a circle.

8. Claim 31 recites the limitation "said outlet member" in line 1. There is insufficient antecedent basis for this limitation in the claim.

#### ***Claim Rejections - 35 USC § 102***

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

10. Claims 1-4, 23-24, and 29-30 are rejected under 35 U.S.C. 102(e) as being anticipated by Rose et al., US 6,551,557.

Rose et al. disclose a ceramic tip and a random access print head for the transfer of microfluidic quantities of fluid. The print head can randomly collect and deposit fluid samples to transfer the samples from a source plate to a target. The print head can also

be programmed to create a direct map of the fluid samples from the source plate on the target or to create any desired pattern or print on the target. The tip and print head can be used for a wide variety of applications such as DNA microarraying and compound reformatting. In one preferred embodiment, the tip is used as a capillary or "gravity" pin to draw or collect source fluid and "spot" or deposit the fluid onto the target via physical contact (touch-off). In another preferred embodiment, the tip is used in conjunction with an aspirate-dispense system to actively aspirate source fluid and deposit the fluid via a contact or non-contact approach. The tip provides improved, accurate and repeatable microfluidic transfer (abstract).

The apparatus generally comprises a ceramic tip, a drop-on-demand valve and a positive displacement pump (may provide pressurized gas or liquid). The ceramic tip includes a nozzle with an inner taper to provide improved and generally laminar flow. The drop-on-demand valve is adapted to be opened and closed at a predetermined frequency and/or duty cycle to permit intermittent hydraulic coupling with the tip. The positive displacement pump is hydraulically coupled with the valve for metering predetermined quantities of fluid to or from the tip.

Multiple dispensers (12) (plurality of cartridges) may be arranged in an array printhead (cassette). Each dispenser comprises a reservoir portion 32 and protruding tip/outlet member 200 with nozzle 214.

For DNA microarraying the system 10 can form dots having a diameter in the range from about 50  $\mu\text{m}$  to greater than about 400  $\mu\text{m}$

The system 10 can also transfer fluid volumes as low as in the picoliter range and up to about 100 nanoliter (nL) or more. For high throughput screening (compound reformatting) the target 30 is typically a microtiter plate, such as a 96, 384 or 1536 well plate. In this case, the system 10 can transfer fluid volumes in the range from about 1 nL to about 200 nL or more (column 17, lines 1-8).

### ***Conclusion***

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Gratzl, Miklos et al.; Lemmo, Tony et al.; Pelc, Richard E. et al.; and Freeman; Alex Reddy disclose dispensing devices.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian R. Gordon whose telephone number is 571-272-1258. The examiner can normally be reached on M-F, with 2nd and 4th F off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jill Warden can be reached on 571-272-1267. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



The image shows a handwritten signature in black ink, appearing to read "Ezra D. R.". Below the signature, the initials "brg" are written in a smaller, lowercase font.

brg